

CLAIMS

We claim:

- [c1] 1. A method for conducting a communication session, comprising:
during the communication session, triggering a wireless data session with a wireless data channel from a voice session, including
pushing data to the wireless data channel and
pulling data from the wireless data channel,
wherein triggering a wireless data session includes transmitting one or more of automatic number identification (ANI) data, dialed number identification service (DNIS) data, and unique identifier (UID) data via a wireless device.; and
during the communication session, triggering a voice session with a voice channel from a wireless data session, including pushing data to the voice channel and pulling data from the voice channel, wherein during the communication session, data is shared between the wireless data channel and the voice channel, the data pushed and pulled includes VoiceXML data, hypertext transfer protocol (HTTP) data, wireless application protocol (WAP) data, short message service (SMS) data, and wireless markup language (WML) data.
- [c2] 2. The method of claim 1, further comprising a call service that facilitates the communication session, including:
communicating with a customer application to receive a specification of data to be pushed or pulled during the communication session;
performing data formatting as required on data to be pushed or pulled during the communication session; and

communicating with an interactive voice response (IVR) application,
including transferring formatted data to the IVR application for
delivery to a wireless device and receiving data from the wireless
device via the IVR application.

[c3] 3. The method of claim 2, wherein the call service further includes an
incall service that that handles voice channel content to be sent to a wireless
device in response to a request from the wireless device, the incall service
including;

receiving content from the customer application, wherein the content is
selected using a wireless device;

transferring the content to the IVR application;

notifying the customer application that the IVR application is ready to
communicate with the wireless device; and

sending an identifier of the wireless device and a status message to the
customer application, wherein the status message indicates a status
of communication between the wireless device and the IVR
application.

[c4] 4. The method of claim 3, wherein the content is selected during the
communication session.

[c5] 5. The method of claim 2, wherein the content is selected before the
communication session, and wherein the content is associated with an identifier of
the wireless device.

[c6] 6. The method of claim 2, wherein the call service further includes an
outcall service that that handles voice channel content to be sent to a wireless
device at a predetermined time, the outcall service, including:

receiving content from the customer application;

transferring the content to the IVR application;
notifying the customer application that the IVR application is ready to
communicate with the wireless device; and
sending a status message to the customer application that indicates a
status of communication between the wireless device and the IVR
application, including any response from the wireless device.

[c7] 7. The method of claim 1, further comprising a home page provisioning
service, including:

after the initiation of a voice session from a wireless device, receiving an
identifier for the wireless device;
terminating the voice session;
locating a homepage uniform resource locator (URL) using the identifier;
sending the homepage URL to a messaging service, wherein the
messaging service sends an actionable alert to the wireless device,
wherein the homepage URL is embedded in the actionable alert
such that responding to the actionable alert using the wireless
device initiates a data session with the homepage URL.

[c8] 8. The method of claim 1, further comprising a fax service, including:
receiving previously scheduled a fax data from a customer application;
sending the fax data to one or more previously designated recipient fax
machines;
receiving a request for specific fax data from a wireless device during a
data session;
receiving a destination fax number from the wireless device; and
sending the fax data to the destination fax number.

[c9] 9. The method of claim 8, wherein the data session is a wireless
application protocol (WAP) session.

[c10] 10. The method of claim 1, further comprising a directory service, including:

maintaining a directory of information items including entries formatted for a wireless device display, wherein maintaining includes receiving entries and configuration preferences;
retrieving entries in response to a request during a communication session via the wireless device, wherein the request includes a voice request, and a data request; and
displaying a requested information item on the wireless device display.

[c11] 11. The method of claim 1, further comprising a device registration service, comprising:

capturing a device identification (ID) during a data session initiated by a device user for registering the device;
querying the user for a telephone number of the device;
presenting the user with a personal identification number that is unique to the user;
automatically terminating the data session and initiating a voice session to the device;
during the voice session, prompting the user to enter the PIN; and
receiving the PIN and relating the telephone number to the device ID.

[c12] 12. A wireless communication method, comprising:
during a communication session, triggering a wireless data session with a wireless data channel from a voice session, including
pushing data to the wireless data channel and
pulling data from the wireless data channel; and
during the communication session, triggering a voice session with a voice channel from a wireless data session, including
pushing data to the voice channel and

pulling data from the voice channel,
wherein during the communication session, data is shared between the
wireless data channel and the voice channel.

[c13] 13. The wireless communication method of claim 12, wherein triggering a wireless data session includes transmitting automatic number identification (ANI) data, dialed number identification service (DNIS) data, and unique identifier (UID) data via a wireless device.

[c14] 14. The wireless communication method of claim 12, wherein the data pushed and pulled includes VoiceXML data, hypertext transfer protocol (HTTP) data, wireless application protocol (WAP) data, short message service (SMS) data, and wireless markup language (WML) data.

[c15] 15. The wireless communication method of claim 12, further comprising toggling between a data channel and a voice channel in one communication session.

[c16] 16. The wireless communication method of claim 12, wherein the data pushed and pulled includes actionable data that initiates an action in a channel receiving the actionable data.

[c17] 17. The wireless communication method of claim 12, further comprising navigating data that was pushed or pulled from the voice channel or the data channel, wherein navigation functions include fast forward, rewind, pause, and delete.

[c18] 18. The wireless communication method of claim 12, further comprising:
 capturing a device identification (ID) during a data session initiated by a
 device user for registering the device;

querying the user for a telephone number of the device;
presenting the user with a personal identification number that is unique to
the user;
automatically terminating the data session and initiating a voice session to
the device;
during the voice session, prompting the user to enter the PIN; and
receiving the PIN and relating the telephone number to the device ID.

- [c19] 19. A system for wireless network communication, comprising:
at least one network coupled among two or more wireless communication
devices and at least one customer application;
two or more components coupled to the at least one network, including, a
computer telephony integration/interactive voice response (CTI/IVR)
service, a fax service, a call service, a fax service, and a directory
service, wherein the wireless communication devices access the
components during a communication session, and wherein the
communication session includes,
triggering a wireless data session with a wireless data channel from
a voice session, including pushing data to the wireless data
channel and pulling data from the wireless data channel; and
triggering a voice session with a voice channel from a wireless data
session, including pushing data to the voice channel and
pulling data from the voice channel, wherein during the
communication session, data is shared between the wireless
data channel and the voice channel.

- [c20] 20. The system of claim 19, wherein triggering a wireless data session
includes transmitting automatic number identification (ANI) data, dialed number
identification service (DNIS) data, and unique identifier (UID) data via a wireless
communication device.

[c21] 21. The system of claim 19, wherein the data pushed and pulled includes VoiceXML data, hypertext transfer protocol (HTTP) data, wireless application protocol (WAP) data, short message service (SMS) data, and wireless markup language (WML) data.

[c22] 22. The system of claim 19, wherein the call service component includes:

- an incall service, wherein the incall service,
- an outcall service; and
- a call service interactive voice response (IVR) application, wherein the
 - incall service,
 - receives content from the at least one customer application, wherein
 - the content is selected using a wireless communication device;
 - transfers the content to the IVR application;
 - notifies the customer application that the IVR application is ready to communicate with the wireless communication device; and
 - sends an identifier of the wireless communication device and a status message to the customer application, wherein the status message indicates a status of communication between the wireless communication device and the IVR application.

[c23] 23. The system of claim 22, wherein the outcall service handles voice channel content to be sent to a wireless communication device at a predetermined time, wherein handling includes:

- receiving content from the customer application;
- transferring the content to the IVR application;
- notifying the customer application that the IVR application is ready to communicate with the wireless communication device; and

sending a status message to the customer application that indicates a status of communication between the wireless communication device and the IVR application, including any response from the wireless communication device.

[c24] 24. The system of claim 19, wherein the homepage provisioning service component includes:

after the initiation of a voice session from a wireless communication device,
receiving an identifier for the wireless communication device;
terminating the voice session;
locating a homepage uniform resource locator (URL) using the identifier;
sending the homepage URL to a messaging service, wherein the messaging service sends an actionable alert to the wireless communication device, wherein the homepage URL is embedded in the actionable alert such that responding to the actionable alert using the wireless communication device initiates a data session with the homepage URL.

[c25] 25. The system of claim 19, wherein the fax service component includes:

an application specific wireless markup language (WML) dialog module coupled to a wireless communication device;
a fax server coupled to the WML dialog module; and
a messaging service, wherein the fax service,
executes a request to send a fax, including receiving the request, including format and addressing information during a wireless application protocol (WAP) session, and sending a status message to a wireless device regarding a status of the request; and

executes a scheduled request to send a fax to one or more previously identified recipients, including sending a message to the one or more recipients asking whether the recipient wants to receive the fax, and sending a message to a sender of the scheduled request indicating a status of the scheduled request.

[c26] 26. The system of claim 19, wherein the two or more components further comprise a device registration service, comprising:

capturing a device identification (ID) during a data session initiated by a device user for registering the device;
querying the user for a telephone number of the device;
presenting the user with a personal identification number that is unique to the user;
automatically terminating the data session and initiating a voice session to the device;
during the voice session, prompting the user to enter the PIN; and
receiving the PIN and relating the telephone number to the device ID.

[c27] 27. An electromagnetic medium having instructions stored on it, that when executed by a processor, cause the processor to:

during a communication session between two or more devices, trigger a wireless data session with a wireless data channel from a voice session, including pushing data to the wireless data channel and pulling data from the wireless data channel; and
during the communication session, trigger a voice session with a voice channel from a wireless data session, including pushing data to the voice channel and pulling data from the voice channel, wherein during the communication session, data is shared between the wireless data channel and the voice channel.

[c28] 28. The electromagnetic medium of claim 27, wherein triggering a wireless data session includes transmitting automatic number identification (ANI) data, dialed number identification service (DNIS) data, and unique identifier (UID) data via a wireless device.

[c29] 29. The electromagnetic medium of claim 27, wherein the data pushed and pulled includes VoiceXML data, hypertext transfer protocol (HTTP) data, wireless application protocol (WAP) data, short message service (SMS) data, and wireless markup language (WML) data.

[c30] 30. The electromagnetic medium of claim 27, further comprising toggling between a data channel and a voice channel in one communication session.

[c31] 31. The electromagnetic medium of claim 27, wherein the data pushed and pulled includes actionable data that initiates an action in a channel receiving the actionable data.

[c32] 32. The electromagnetic medium of claim 27, further comprising navigating data that was pushed or pulled from the voice channel or the data channel, wherein navigation functions include fast forward, rewind, pause, and delete.

[c33] 33. The electromagnetic medium of claim 27, further comprising:
capturing a device identification (ID) during a data session initiated by a
device user for registering the device;
querying the user for a telephone number of the device;
presenting the user with a personal identification number that is unique to
the user;
automatically terminating the data session and initiating a voice session to
the device;

during the voice session, prompting the user to enter the PIN; and
receiving the PIN and relating the telephone number to the device ID.

- [c34] 34. A wireless communication apparatus, comprising:
means for triggering a wireless data session with a wireless data channel
from a voice session, and for triggering a voice session with a voice
channel from a wireless data session, wherein during the
communication session, data is shared between the wireless data
channel and the voice channel; and
call service means for facilitating the communication session, including,
means for communicating with a customer application to receive a
specification of data to be pushed or pulled during the
communication session;
means for performing data formatting as required on data to be
pushed or pulled during the communication session; and
means for communicating with an interactive voice response (IVR)
application, including transferring formatted data to the IVR
application for delivery to a wireless device and receiving
data from the wireless device via the IVR application.

- [c35] 35. The apparatus of claim 34, further wherein the call service means
further comprises an incall service means that that handles voice channel content
to be sent to a wireless device in response to a request from the wireless device,
the incall service including;
means for receiving content from the customer application, wherein the
content is selected using a wireless device;
means for transferring the content to an interactive voice response (IVR)
application;
means for notifying the customer application that the IVR application is
ready to communicate with the wireless device; and

means for sending an identifier of the wireless device and a status message to the customer application, wherein the status message indicates a status of communication between the wireless device and the IVR application.

[c36] 36. The apparatus of claim 35, wherein the call service means further includes an outcall service that handles voice channel content to be sent to a wireless device at a predetermined time, the outcall service, including:

means for receiving content from the customer application;
means for transferring the content to the IVR application;
means for notifying the customer application that the IVR application is ready to communicate with the wireless device; and
means for sending a status message to the customer application that indicates a status of communication between the wireless device and the IVR application, including any response from the wireless device.